# EMERGENCY ACTION PLAN
## *XXXX* Dam
## *XXXX* COUNTY, WISCONSIN

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## INTRODUCTION

This section describes the purpose of this Emergency Action Plan (EAP); describes the dam hazard area; identifies those responsible for dam operation and implementation of the EAP; and describes the procedures for training participants, and reviewing, testing, and updating the EAP

## PURPOSE AND INTENT

The purpose of this EAP is primarily to safeguard lives and secondarily to reduce property damage of citizens ***XXXX*** County who live along ***XXXX*** Creek in the event of flooding caused by a large volume of runoff from or failure of ***XXXX*** Dam. This EAP provides dam and contact information and describes actions to take in the event of such flooding.

## DESCRIPTION OF DAM

***XXXX*** Dam is located on ***XXXX*** Creek in ***XXXX*** County, Wisconsin, in Section ***XX***, T***XX***N, R***XX***W. The dam is owned by the ***XXXX*** County Land Conservation Department. The dam creates a 1.87-acre impoundment used for flood control. The drainage area at the dam is 0.58 square miles. The reservoir flood storage capacity is 37.2 acre-feet at the emergency spillway crest, elevation 1223.49 feet. Downstream of the dam, ***XXXX*** Creek winds through steep forested valleys with flat agricultural flood plains and runs into ***XXXX*** Structure 29. Exhibit 1 is a plan and section of ***XXXX*** Dam. All report elevations are referenced to USGS datum. Add 0.51 feet to report elevations to obtain elevations shown on the drawings.

The main components of the dam are:

- Homogenous earth embankment, approximately 250 feet long, with a crest elevation of 1225.49 feet and an approximate structural height of 36 feet.

- 2.5H:1V upstream embankment slope with a 8-feet-wide berm at elevation 1210.49 feet, a 14-feet-wide crest, and 2.5H:1V downstream embankment slope.

- Grass-Iined overflow chute emergency spillway, 20 feet wide with a crest elevation of 1223.49 feet, located at the right abutment.

- Concrete rectangular drop inlet principal spillway, 3 feet by 3 feet, with a crest elevation of 1210.49 feet.

- Concrete conduit and outlet, 18 inches in diameter with an outlet invert elevation of 1190.99 feet.

- Unlined stilling pool.

The Soil Conservation Service (SCS) designed and funded construction of the dam under Public Law 566. Dam construction was completed in 1961. No significant modifications have been made to the dam since its construction.

## HAZARD AREA

### Area That Would Be Affected by a Breach or Major Flooding

A dam failure analysis was performed to determine the area that would be inundated if the dam were to fail during the 100-year flood on ***XXXX*** Creek. The analysis extended approximately 2.01 miles downstream from the ***XXXX*** Dam to just past ***XXXX*** Structure 29. The hydraulic shadow ends 1.79 miles downstream of the dam. Exhibit 2 is a hydraulic shadow map showing the area that would be inundated by a 100- year dam failure flood. Exhibit 3 shows 100-year flood profiles for the river reach studied.

### Populations Affected

No residences, buildings, or campgrounds would be inundated by the dam failure flood or 100-year flood.

### Critical Facilities

No critical facilities, such as hospitals, rescue and relief facilities, water supply facilities, hazardous waste facilities, or bridges, are in the hazard area.

## RESPONSIBILITY AND AUTHORITY

### Dam Operation and Maintenance

The ***XXXX*** County Land Conservation Department maintains the dam and Allen ***XXXX*** is the dam operator. An emergency phone number list is in Appendix A.

The dam operator works at the ***XXXX*** County Conservation Office and observes the dam two to three times a year during inspections and routine maintenance. The operator is also on call during high water conditions.

The address and telephone number of the dam operator are:

***XXXX*** County Conservationist
Work address and telephone number:
820 Industrial Drive, Suite 3
***XXXX***, WI ***XXXX***
(608) ***XXXX***
Home address and telephone number:
820 ***XXXX***
***XXXX***, WI ***XXXX***
(608) ***XXXX***

**EAP Coordinator and Participants**

Allen ***XXXX***, ***XXXX*** County Conservationist, is the EAP Coordinator and has overall responsibility for implementing the EAP, including training participants and periodic reviewing, testing, and updating of the EAP.

The address and telephone number of the EAP Coordinator are as follows:

***XXXX*** County Conservationist
Work address and telephone number:
820 Industrial Drive, Suite 3
***XXXX*** WI ***XXXX***
(608) - ***XXXX***
Home address and telephone number:
820 ***XXXX***
***XXXX,***WI ***XXXX***
(608) ***XXXX***

The EAP participants are the following:

***XXXX,*** County Sheriff
***XXXX***, County Emergency Government Director

The telephone numbers for the participants are listed on the notification charts in Appendix B. The procedures for carrying out the phases of the EAP are described in the subsection titled "Levels of Emergency and Notification Procedures."

**PERIODIC TRAINING. REVIEW. UPDATING. AND TESTING**

The EAP coordinator's duties include the following:

- Training EAP participants to handle an emergency situation at ***XXXX*** Dam.
- Annually reviewing the EAP with EAP participants for any required changes and distributing copies of the revised plan to participants.
- Testing the EAP.
- Submitting EAP revisions and testing reports to the Wisconsin Department of Natural Resources.

**Review and Updating**

Annually the EAP Coordinator verbally reviews the plan with EAP participants to explain the procedures to follow in the event of an emergency, address any changes that need to be made in the plan, answer questions regarding the procedures, and test their understanding of the plan. The

EAP participants review the plan for possible changes, including:

- Changes in personnel.
- Changes in telephone numbers.
- New conditions that would affect flood flows or the extent of damage due to a dam failure.

The EAP Coordinator promptly makes the needed changes in the EAP and distributes a revised plan to all participants. If changes are made in the EAP at any other time, the EAP Coordinator also verbally reviews these changes with the participants and distributes a revised plan.

**Testing**

The EAP Coordinator is responsible for conducting a test simulating a dam failure. Testing the plan familiarizes the EAP participants with the plan, helps estimate the time needed for notification, and helps reveal any plan deficiencies. The EAP Coordinator initiates the test by contacting the ***XXXX*** County Sheriff. EAP participants must perform their required actions as if in a real emergency. When executing the test, each participant states their name and position and indicates that this is only a test.

To assess the degree of success of the test, the EAP Coordinator requests that each participant comment about the execution of the notification procedures, discuss any problems encountered, and suggest any changes that would improve the EAP. The EAP Coordinator keeps this information on file for comparison with future tests and revises the EAP if needed.

## APPROVAL

Key EAP participants need to approve the EAP by signing and dating the approval form on the following page. By signing the approval form, they agree to their responsibilities to review the EAP process and carry out the plan.

**EAP Approval Form**

We, the undersigned, this date acknowledge this plan as part of the emergency operation procedure to protect life and reduce property damage in case of an emergency at ***XXXX*** Dam.

_____ _____

Allen ***XXXX*** Date
***XXXX*** County Conservationist

_____ _____

Dale ***XXXX*** Date
***XXXX*** County Sheriff

_____ _____

Gordon ***XXXX*** Date
County Emergency
***XXXX*** Government Coordinator

# IDENTIFICATION OF EMERGENCY

This section describes the events or conditions that indicate an emergency, defines the levels of emergency, and describes how EAP participants and the public should be notified in the event of an emergency.

## EVENTS OR CONDITIONS THAT INDICATE AN EMERGENCY

An emergency exists when dam failure has occurred or when dam failure is imminent. Floods are a major cause of dam failure, and the dam should be monitored during high water conditions. However, failure may also occur during normal conditions, and this failure can be the most dangerous because the resulting flood would be sudden.

- Conditions indicating potential failure include, but are not limited to, the following:
- Slumping or sloughing of the embankment.
- Excessive erosion on the embankment, below the spillway, or at the abutments.
- Excessive seepage or cloudy seepage through the abutments or embankments.
- Settlement or cracking in the embankment.
- Piping or boils in the embankment.
- Large cracks in the concrete spillway.
- Noticeable movement of the spillway.

The most common cause of failure for dams like ***XXXX*** Dam is a flood or high water event that erodes the embankment and eventually results in a breach. Ice buildup can also be a factor in dam failure because it creates additional stress on the dam. If ice builds up on the drop inlet spillway, it can block flow and lead to a high water condition.

## LEVELS OF EMERGENCY AND NOTIFICATION PROCEDURES

The first step in the notification process is to identify that there is a potential problem with the dam and to assess its seriousness.

The two levels of emergency are an alert condition and a warning condition:

- An alert condition indicates that a potentially serious condition is developing and failure could occur if conditions do not improve.
- A warning condition indicates that failure of the dam is imminent or has already occurred.

Notification charts for an alert condition and a warning condition are in Appendix B. These notification charts list contact names and telephone numbers.

**Alert Condition**

If a potentially serious situation is developing, the observer contacts the EAP Coordinator, who can then make a decision as to what further steps are required. The EAP Coordinator informs the Sheriff of the situation. The Sheriff may then decide to contact the ***XXXX*** County Emergency Government.

**Warning Condition**

If failure is imminent or has occurred, the observer contacts the EAP Coordinator who will then contact the County Sheriff. The Sheriff contacts the ***XXXX*** County Emergency Government and then the Wisconsin State Warning Center, and the Monroe County Highway Commissioner, so they can set barricades and reroute traffic, if needed. The Sheriff also contacts the news media and the public. The Wisconsin State Warning Center will contact the Wisconsin Department of Natural Resources Duty Officer and the State Dam Safety Engineer.

The top priority in the notification process is the protection of human life, and the order of those notified in a warning condition may need to be modified to meet this priority.

After carrying out the notification procedures, the EAP Coordinator or the Sheriff proceed to the dam. The dam is approximately 15 miles from ***XXXX,*** the county seat. After arriving at the site, they will closely monitor the dam, assess damage, and develop a plan for repair in coordination with the State Dam Safety Engineer.

# PREVENTIVE ACTION

During an alert condition or warning condition, specific preventive actions may help to prevent or delay dam failure. Because the feasibility and effectiveness of a preventive action will depend on the specific situation, we advise the County to consult a qualified engineer before taking any preventive action. Preventive actions could include:

- Removing ice or debris from the drop inlet intake.
- Placing riprap in pipe outlet plunge pool if scour is occurring.
- Placing sandbags on the crest of the embankment.

Because of uncertainties about their effectiveness, these preventive actions should be carried out simultaneously with appropriate notification of an alert condition or warning condition.

A key person in implementing preventive actions ***XXXX*** Dam is the dam operator, who closely observes the dam and monitors water levels during high water conditions.

The contacts for equipment such as sand bags, that could be used at the dam for preventive action are listed in Appendix C.

# REENTRY AND RECOVERY

The ***XXXX*** County Sheriff's Department performs the reentry. The Sheriff's Department should inspect the private drive and CTH Y that crosses ***XXXX*** Creek for washouts or other hazardous conditions and perform surveillance of the rest of the accessible area downstream of the dam. This surveillance should include inspection of any water, gas, and sanitation lines. The area downstream of the dam is accessible from a private drive off of CTH Y. The Sheriff's Department should photograph and keep a log of observed damages.

## CALIBRATION

Model calibrated to _____ Historical data _____ FIS

Were any sensitivity analyses performed _____

## HAZARD RATING

Hazard rating assigned _____

___ Development in hydraulic shadow _____

___ Development in w/o dam fp/fw _____

___ Inventory and identification of downstream structures

___ All other information necessary to determine hazard rating

___ Did we field check

Required principle spillway capacity _____

total spillway capacity _____

Can dam pass design flow? _____

If yes, is there any freeboard? _____ How much? _____

## STABILITY ANALYSIS

Method used to calculate sliding _____

Overturning _____

foundation _____

Was embankment stability addressed? _____

Do the embankment slopes and construction look stable? _____

Was subsurface investigation made? _____ If so how extensive? _____

| **Elevation** | **Factors of Safety** | | |
|---|---|---|---|
| | Sliding | Overturning | Foundation |
| Normal Pool | _____ | _____ | _____ |
| Max Pool | _____ | _____ | _____ |
| Max Load (ice, debris...) | _____ | _____ | _____ |

Are factors of safety adequate _____

Is the dam safe _____

# NOTIFICATION FLOW CHART

**WARNING CONDITION**

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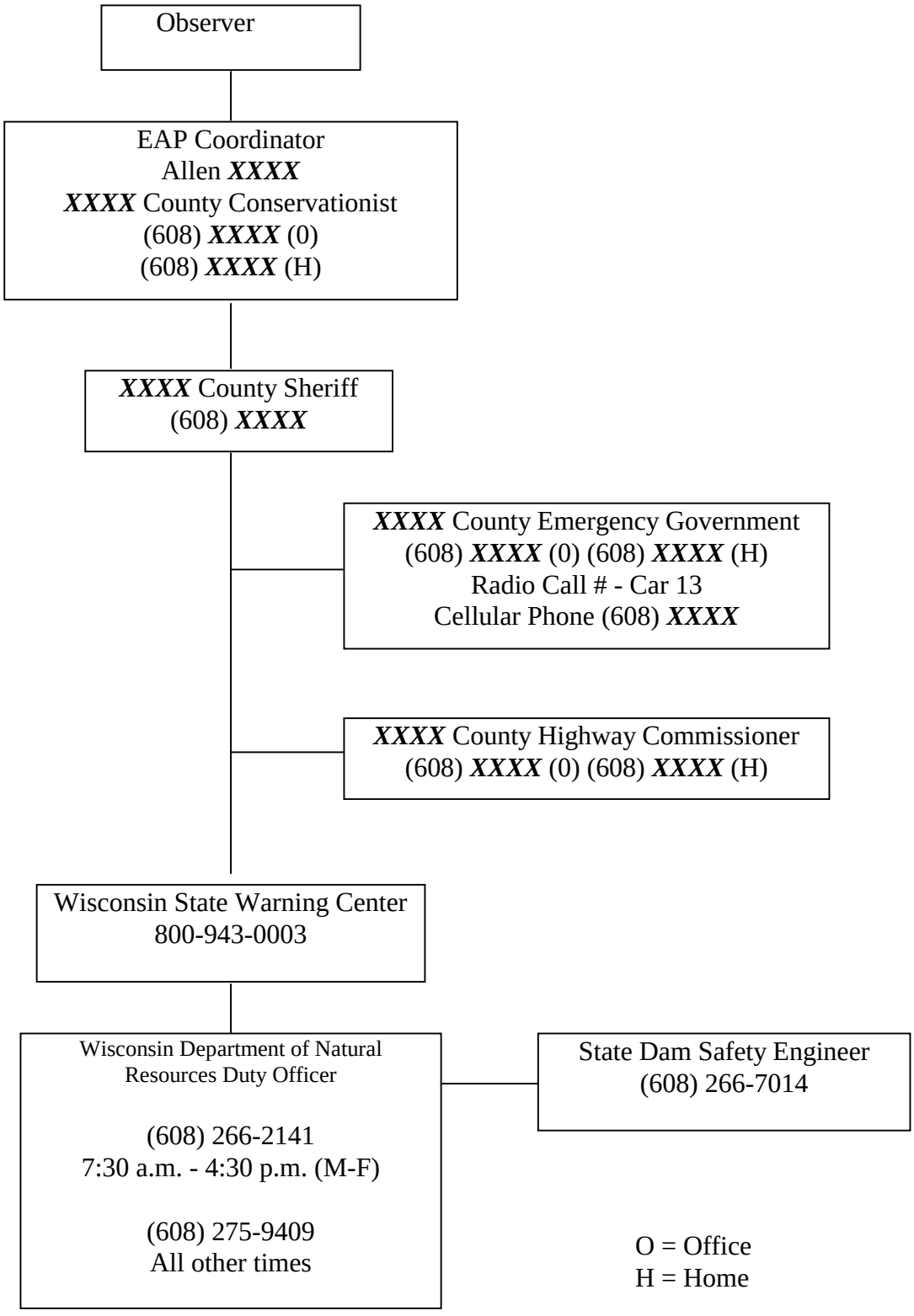
**Failure of *XXXX* Dam Is Imminent**



# NOTIFICATION FLOW CHART

**ALERT CONDITION**

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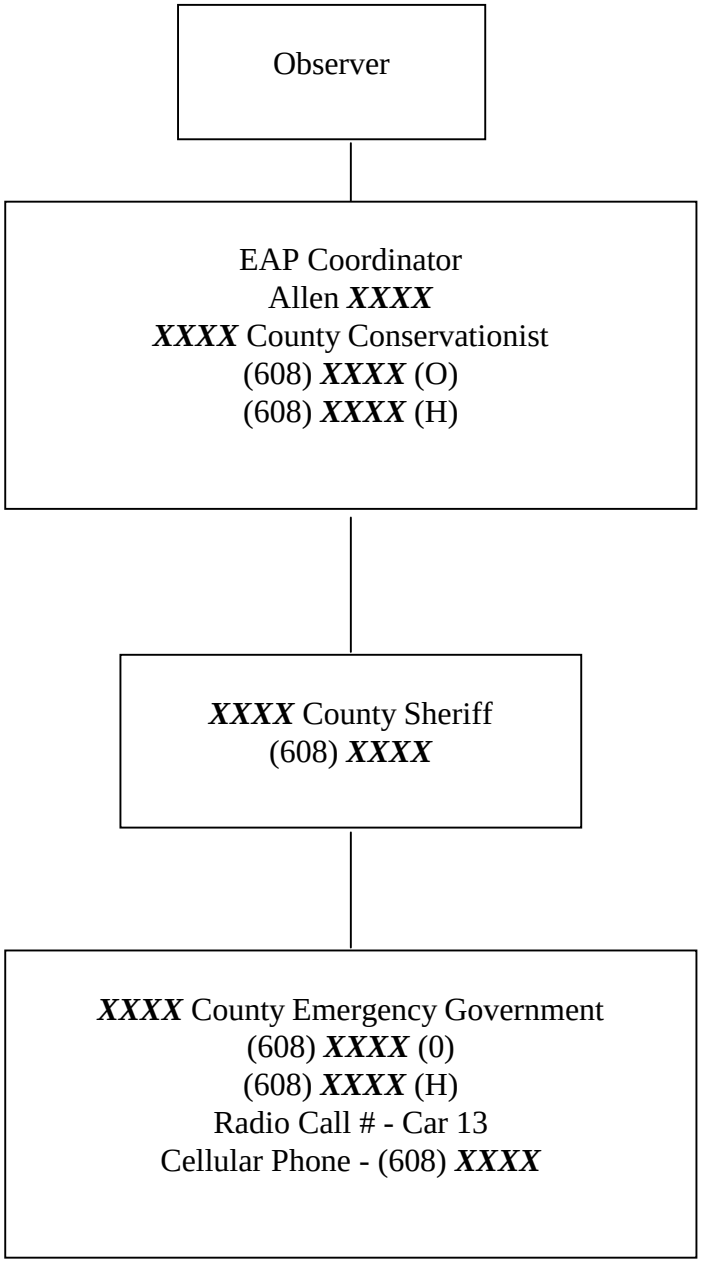
**Potentially Hazardous Situation Is Developing at *XXXX* Dam**




O = Office
H = Home

## EQUIPMENT LIST

| Type of Equipment | Approximate Number Available | Contact | Telephone Number |
|---|---|---|---|
| Sand bags | | | |